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EXAMINER	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/826,159	ZENG ET AL.	
	Examiner	Art Unit	
	AARON SANDERS	2168	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 May 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-33* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *11 and 32* is/are allowed.

6)☒ Claim(s) *1-10,12-31 and 33* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *15 April 2004* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *3/25/2009*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

The amendment filed 1 May 2009 has been entered. Claims 1-33 are pending. Claims 1, 11, 13, 22, and 32 are currently amended. Claims 34-40 are cancelled. No claims are new. This action is FINAL, as necessitated by amendment.

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the step of "storing the list of search terms" in claims 1 and 11 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will

be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

As per claims 26 and 29, the limitation "the at least one of the identified relationships" lacks antecedent basis in the claims. It appears that the limitation should be "at least one of the identified relationships."

Claim Rejections - 35 USC § 112, First Paragraph

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1, 11, 13, 22, and 32 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Specifically, the limitation "identifying intra(inter)-layer relationships… based on user interaction with the multi-type data objects" does not appear in the specification.

Claim Rejections - 35 USC § 112, Second Paragraph

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1, 12, 21, and 33 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation "the multi-type data objects of a same (different) type(s)." There is insufficient antecedent basis for this limitation in the claim. It appears that it should be "multi-type data objects of a same (different) type(s)."

Claims 12, 21, and 33 recite the limitation "utilizing." There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-10, 12-31, and 33 are rejected under 35 U.S.C. 102(e) as being anticipated by Haahr et al., U.S. 2005/0055341 ("Haahr").

1. Haahr teaches "*A computer-implemented method performed by a computing device that has one or more processors to execute instructions, the method comprising*," see Fig. 1 and par. 22, "FIG. 1 is a block diagram showing a system 10 for providing search query refinements."

Haahr teaches "*identifying intra-layer relationships among multi-type data objects based on user interaction with the multi-type data objects, wherein the intra-layer relationships are interconnections between the multi-type data objects of a same type in a homogeneous group of the multi-type data objects*," see Fig. 9, par. 68, "FIG. 9 is a flow diagram showing a routine 120 for performing precomputation based on cached documents and queries. The purpose of this routine is to invert pairings of cached document-cached queries maintained in the cache 23 for use as stored queries 40 and stored documents 41," and Fig. 10, par. 72, "Initially, a search query 59 is issued (Block 131) and search results, in the form of search documents 60, and relevance scores 61 are received (Block 132). If possible, the stored documents 41 are matched to the search results (Block 133). Ideally, at least one of the search results will match a stored document 41," where the claimed "intra-layer relationships" are the referenced matchings between the stored documents and search results and/or the referenced cached queries.

Haahr teaches "*identifying inter-layer relationships among the multi- type data objects based on the user interaction with the multi-type data objects, wherein the inter-layer relationships are interconnections between the multi-type data objects of different types in a heterogeneous group of the multi-type data objects*," see Fig. 10 and par. 73, "Next, for each matched search result, the association 42 corresponding to the matched stored document 41 is determined and is used to retrieve the associated stored queries 40 and weights 43 (Block 134)," where the claimed "inter-layer relationships" are the referenced associations between the stored documents and the stored queries.

Haahr teaches "*iteratively clustering the multi-type data objects by the intra-layer relationships and the inter-layer relationships to generate reinforced clusters*," see par. 11, "At

least one cluster is formed based on the stored query and weight associated with each stored document matched responsive to the query. At least one further search document retrieved responsive to a candidate query is matched to the one or more stored documents. At least one further cluster is formed based on the stored query and weight associated with each stored document matched responsive to the candidate query. The at least one cluster and the at least one further cluster are combined," where the claimed "iteratively clustering" is the referenced first and second clustering and the claimed "reinforced clusters" are the referenced combined clusters.

Haahr teaches "*generating a list of search terms associated with a bid term using the reinforced clusters, the search terms generated in response to receiving the bid term from a user*," see Fig. 10, par. 72, "Initially, a search query 59 is issued (Block 131)," and par. 78, "The set of refinements 67 are presented (Block 149)," where the claimed "bid term" is the referenced "search query" and the claimed "search terms" are the referenced "refinements."

Haahr teaches "*and storing the list of search terms on a computer readable storage media*," see Fig. 3 and par. 39, "The query refinement system 51 formulates and suggests one or more query refinements 67. The query refinements can be formulated either as an on-line operation following a search query issuance or based on precomputations for a given set of search queries," where at least the refinements based on precomputations would be stored on a computer readable storage media.

2. Haahr teaches "*The method of claim 1, wherein the inter-layer relationships include at least one of content related information, user interest in an associated topic, and user interest in an associated Web page*," see Fig. 8 and par. 66, "Initially, previous search queries 27 are

tracked using the query log 26 (Block 111). Each previous search query 27 is selected as a stored query 40 (Block 112)."

3. Haahr teaches "*The method of claim 1, wherein the intra-layer relationships include at least one of query refinement, recommended Web page, and relationship between respective users*," see Fig. 9 and par. 68, "FIG. 9 is a flow diagram showing a routine 120 for performing precomputation based on cached documents and queries. The purpose of this routine is to invert pairings of cached document-cached queries maintained in the cache 23 for use as stored queries 40 and stored documents 41," where the claimed "query refinement" is included in the referenced cached queries.

4. Haahr teaches "*The method of claim 1, wherein each of the multi-type data objects are related to at least one of a search query data object type, a selected Web page type, and a user information type*," see par. 9, "At least one search document retrieved responsive to a query is matched to one or more stored queries."

5. Haahr teaches "*The method of claim 1, wherein the inter-layer relationships include a first weighting scheme and the intra-layer relationships include a second weighting scheme different than the first weighting scheme to indicate importance to associated objects of the multi-type data objects*," see pars. 72-73, "Initially, a search query 59 is issued (Block 131) and search results, in the form of search documents 60, and relevance scores 61 are received (Block 132)… Next, for each matched search result, the association 42 corresponding to the matched stored document 41 is determined and is used to retrieve the associated stored queries 40 and weights 43 (Block 134)," where the claimed "first weighting scheme" is the referenced "weights" and the claimed "second weighting scheme" is the referenced "relevance."

6. Haahr teaches "*The method of claim 1, wherein the identifying and the iteratively clustering are performed for search term suggestions*," see Fig. 10 and par. 78, "The set of refinements 67 are presented (Block 149)."

7. Haahr teaches "*The method of claim 1, wherein the iteratively clustering comprises propagating clustering results of a first iteration to all related data objects of the multi-type data objects, at least two of the related data objects being of heterogeneous data type, the propagating being used to enhance clustering of respective ones of the multi-type data objects in a second iteration of reinforced clustering operations*," see par. 11, "At least one cluster is formed based on the stored query and weight associated with each stored document matched responsive to the query. At least one further search document retrieved responsive to a candidate query is matched to the one or more stored documents. At least one further cluster is formed based on the stored query and weight associated with each stored document matched responsive to the candidate query. The at least one cluster and the at least one further cluster are combined."

8. Haahr teaches "*The method of claim 1, wherein the iteratively clustering comprises determining a similarity between individual ones of the multi-type data objects, the similarity being a function of at least one of inter-object and intra-object content similarity and similarities between the inter-layer relationships and the intra-layer relationships*," see Fig. 10 and pars. 73-74, "A term vector 62 is then computed from the terms occurring in the matched stored queries 40 and corresponding weights 43 (Block 135)… Clusters 63 are then formed based on the distances of the term vectors 62 from a common origin (Block 137)."

9. Haahr teaches "*The method of claim 1, wherein the iteratively clustering comprises merging related ones of the multi-type data objects to reduce feature space dimensionality of the*

related ones," see par. 78, "In the described embodiment, each supplemental query consists of the terms originally appearing in the search query 59 and negated forms of all terms appearing in the set of refinements 67, but not appearing in the original search query."

10. Haahr teaches "*The method of claim 1, wherein the method further comprises mutually reinforcing an importance of individual ones of the multi-type data objects within an object type and between different object types*," see par. 78, "Finally, the set of refinements 67 are sorted into rankings (Block 147) as a function of the relevance scores 61 assigned to the search documents 60 corresponding to the matched stored documents 41 appearing in each cluster 63 plus the size of the cluster 63 in number of stored documents 41."

12. Haahr teaches "*The method of claim 1, wherein the utilizing the reinforced clusters comprises: responsive to receiving the bid term from a user, comparing the bid term with a feature space of objects in the reinforced clusters*," see Fig. 10 and par. 77, "A score 66 is then computed for each unique search query 59 occurring in the potential refinement cluster 64 (Block 143)."

Haahr teaches "*responsive to comparing, identifying one or more search term suggestions*," see Fig. 10 and par. 77, "If the score 66 for the unique stored query 40 exceeds a predefined threshold (Block 144), the name is added to the set of query refinements 67 (Block 145)."

Haahr teaches "*and communicating the search term suggestions to the user*," see Fig. 10 and par. 78, "The set of refinements 67 are presented (Block 149) based on the rankings and, optionally, cluster scores."

13. Haahr teaches "*A computing device comprising: a processor*," see Fig. 1, Processor 13.

Haahr teaches "*and a memory coupled to the processor, the memory comprising computer-program instructions executable by the processor for*," see Fig. 1, Memory 14.

Haahr teaches "*identifying relationships among multi-type data objects, wherein the identified relationships include intra-layer relationships and inter-layer relationships such that: the intra-layer relationships are among a homogeneous group of the multi-type data objects having an interconnection based on user interaction with the multi-type data objects*," see Fig. 9, par. 68, "FIG. 9 is a flow diagram showing a routine 120 for performing precomputation based on cached documents and queries. The purpose of this routine is to invert pairings of cached document-cached queries maintained in the cache 23 for use as stored queries 40 and stored documents 41," and Fig. 10, par. 72, "Initially, a search query 59 is issued (Block 131) and search results, in the form of search documents 60, and relevance scores 61 are received (Block 132). If possible, the stored documents 41 are matched to the search results (Block 133). Ideally, at least one of the search results will match a stored document 41," where the claimed "intra-layer relationships" are the referenced matchings between the stored documents and search results and/or the referenced cached queries.

Haahr teaches "*and the inter-layer relationships are among a heterogeneous group of the multi-type data objects having an interconnection based on the user interaction with the multi-type data objects*," see Fig. 10 and par. 73, "Next, for each matched search result, the association 42 corresponding to the matched stored document 41 is determined and is used to retrieve the associated stored queries 40 and weights 43 (Block 134)," where the claimed "inter-layer

relationships" are the referenced associations between the stored documents and the stored queries.

Haahr teaches "*iteratively clustering the multi-type data objects by at least one of the identified relationships to generate reinforced dusters, each relationship of the identified relationships being weighted to indicate an importance of the multi-type data objects*," see par. 11, "At least one cluster is formed based on the stored query and weight associated with each stored document matched responsive to the query. At least one further search document retrieved responsive to a candidate query is matched to the one or more stored documents. At least one further cluster is formed based on the stored query and weight associated with each stored document matched responsive to the candidate query. The at least one cluster and the at least one further cluster are combined" and pars. 72-73, "Initially, a search query 59 is issued (Block 131) and search results, in the form of search documents 60, and relevance scores 61 are received (Block 132)… Next, for each matched search result, the association 42 corresponding to the matched stored document 41 is determined and is used to retrieve the associated stored queries 40 and weights 43 (Block 134)," where the claimed "iteratively clustering" is the referenced first and second clustering and the claimed "reinforced clusters" are the referenced combined clusters.

Haahr teaches "*and generating, a list of search terms associated with a bid term using the reinforced clusters, the search terms generated in response to receiving the bid term from a user*," see Fig. 10, par. 72, "Initially, a search query 59 is issued (Block 131)," and par. 78, "The set of refinements 67 are presented (Block 149)," where the claimed "bid term" is the referenced "search query" and the claimed "search terms" are the referenced "refinements."

14. Haahr teaches "*The computing device of claim 23, wherein the inter-layer relationships include at least one of content related information, user interest in an associated topic, and user interest in an associated Web page*," see Fig. 8 and par. 66, "Initially, previous search queries 27 are tracked using the query log 26 (Block 111). Each previous search query 27 is selected as a stored query 40 (Block 112)."

15. Haahr teaches "*The computing device of claim 13, wherein the intra-layer relationships include at least one of query refinement, recommended Web page, and relationship between respective users*," see Fig. 9 and par. 68, "FIG. 9 is a flow diagram showing a routine 120 for performing precomputation based on cached documents and queries. The purpose of this routine is to invert pairings of cached document-cached queries maintained in the cache 23 for use as stored queries 40 and stored documents 41," where the claimed "query refinement" is included in the referenced cached queries.

16. Haahr teaches "*The computing device of claim 13, wherein identifying and iteratively clustering are performed for search term suggestion*," see Fig. 10 and par. 78, "The set of refinements 67 are presented (Block 149)."

17. Haahr teaches "*The computing device of claim 13, wherein the computer-program instructions for the iteratively clustering comprise instructions for aggregating data object relationships to related ones of the multi-type data objects based on content of the reinforced clusters*," see par. 11, "At least one cluster is formed based on the stored query and weight associated with each stored document matched responsive to the query. At least one further search document retrieved responsive to a candidate query is matched to the one or more stored documents. At least one further cluster is formed based on the stored query and weight

associated with each stored document matched responsive to the candidate query. The at least one cluster and the at least one further cluster are combined."

18. Haahr teaches "*The computing device of claim 13, wherein the instructions for the iteratively clustering comprise instructions for determining a similarity between individual ones of the multi-type data objects, the similarity being a function of at least one of inter-object and intra-object content similarity and similarities between the at least one of the identified relationships*," see Fig. 10 and pars. 73-74, "A term vector 62 is then computed from the terms occurring in the matched stored queries 40 and corresponding weights 43 (Block 135)… Clusters 63 are then formed based on the distances of the term vectors 62 from a common origin (Block 137)."

19. Haahr teaches "*The computing device of claim 13, wherein the instructions for the iteratively clustering comprise instructions for merging related ones of the multi-type data objects to reduce feature space dimensionality of the related ones*," see par. 78, "In the described embodiment, each supplemental query consists of the terms originally appearing in the search query 59 and negated forms of all terms appearing in the set of refinements 67, but not appearing in the original search query."

20. Haahr teaches "*The computing device of claim 13, wherein the instructions for the iteratively clustering comprise instructions for iteratively clustering until all object types represented by the multi-type data objects converge*," see par. 78, "In the described embodiment, each supplemental query consists of the terms originally appearing in the search query 59 and negated forms of all terms appearing in the set of refinements 67, but not appearing in the original search query."

21. Singh teaches "*The computing device of claim 13, wherein the utilizing the reinforced clusters comprises: responsive to receiving the bid term from a user, comparing the bid term with a feature space of objects in the reinforced clusters*," see Fig. 10 and par. 77, "A score 66 is then computed for each unique search query 59 occurring in the potential refinement cluster 64 (Block 143)."

Haahr teaches "*responsive to comparing, identifying one or more search term suggestions*," see Fig. 10 and par. 77, "If the score 66 for the unique stored query 40 exceeds a predefined threshold (Block 144), the name is added to the set of query refinements 67 (Block 145)."

Haahr teaches "*and communicating the search term suggestions to the user*," see Fig. 10 and par. 78, "The set of refinements 67 are presented (Block 149) based on the rankings and, optionally, cluster scores."

22. Haahr teaches "*A computer-readable storage medium comprising computer-executable instructions executable by a processor for*," see Fig. 1, Memory 14.

Haahr teaches "*identifying intra-layer relationships and inter-layer relationships among multi-type data objects, wherein the intra-layer relationships are among a homogeneous group of the multi-type data objects having an interconnection based on user interaction with the multi-type data objects*," see Fig. 9, par. 68, "FIG. 9 is a flow diagram showing a routine 120 for performing precomputation based on cached documents and queries. The purpose of this routine is to invert pairings of cached document-cached queries maintained in the cache 23 for use as stored queries 40 and stored documents 41," and Fig. 10, par. 72, "Initially, a search query 59 is issued (Block 131) and search results, in the form of search documents 60, and relevance scores

61 are received (Block 132). If possible, the stored documents 41 are matched to the search results (Block 133). Ideally, at least one of the search results will match a stored document 41," where the claimed "intra-layer relationships" are the referenced matchings between the stored documents and search results and/or the referenced cached queries. Haahr teaches "*and wherein the inter-layer relationships are among a heterogeneous group of the multi-type data objects having an interconnection based on the user interaction with the multi-type data objects*," see Fig. 10 and par. 73, "Next, for each matched search result, the association 42 corresponding to the matched stored document 41 is determined and is used to retrieve the associated stored queries 40 and weights 43 (Block 134)," where the claimed "inter-layer relationships" are the referenced associations between the stored documents and the stored queries.

Haahr teaches "*iteratively clustering the multi-type data objects by at least one of the identified relationships to generate reinforced clusters*," see par. 11, "At least one cluster is formed based on the stored query and weight associated with each stored document matched responsive to the query. At least one further search document retrieved responsive to a candidate query is matched to the one or more stored documents. At least one further cluster is formed based on the stored query and weight associated with each stored document matched responsive to the candidate query. The at least one cluster and the at least one further cluster are combined," where the claimed "iteratively clustering" is the referenced first and second clustering and the claimed "reinforced clusters" are the referenced combined clusters.

Haahr teaches "*and generating a list of search terms associated with a bid term using the reinforced clusters, the search terms generated in response to receiving the bid term from a user*," see Fig. 10, par. 72, "Initially, a search query 59 is issued (Block 131)," and par. 78, "The

set of refinements 67 are presented (Block 149)," where the claimed "bid term" is the referenced "search query" and the claimed "search terms" are the referenced "refinements."

23. Haahr teaches "*The computer-readable storage medium of claim 22, wherein the inter-layer relationships comprise at least one of content related information, user interest in an associated topic, and user interest in an associated Web page*," see Fig. 8 and par. 66, "Initially, previous search queries 27 are tracked using the query log 26 (Block 111). Each previous search query 27 is selected as a stored query 40 (Block 112)."

24. Haahr teaches "*The computer-readable storage medium of claim 22, wherein the intra-layer relationships comprise at least one of query refinement, recommended Web page, and relationship between respective users*," see Fig. 9 and par. 68, "FIG. 9 is a flow diagram showing a routine 120 for performing precomputation based on cached documents and queries. The purpose of this routine is to invert pairings of cached document-cached queries maintained in the cache 23 for use as stored queries 40 and stored documents 41," where the claimed "query refinement" is included in the referenced cached queries.

25. Haahr teaches "*The computer-readable storage medium of claim 22, wherein each of the multi-type data objects are related to at least one of a search query data object type, a selected Web page type, and a user information type*," see par. 9, "At least one search document retrieved responsive to a query is matched to one or more stored queries."

26. Haahr teaches "*The computer-readable storage medium of claim 22, wherein the at least one of the identified relationships are weighted to indicate an importance to associated objects of the multi-type data objects*," see pars. 72-73, "Initially, a search query 59 is issued (Block 131) and search results, in the form of search documents 60, and relevance scores 61 are

received (Block 132)… Next, for each matched search result, the association 42 corresponding to the matched stored document 41 is determined and is used to retrieve the associated stored queries 40 and weights 43 (Block 134)," where the claimed "first weighting scheme" is the referenced "weights" and the claimed "second weighting scheme" is the referenced "relevance."

27. Haahr teaches "*The computer-readable storage medium of claim 22, wherein identifying and iteratively clustering are performed for search term suggestion*," see Fig. 10 and par. 78, "The set of refinements 67 are presented (Block 149)."

28. Haahr teaches "*The computer-readable storage medium of claim 22, wherein the iteratively clustering comprises propagating clustering results of a first iteration to all related data objects of the multi-type data objects, at least two of the related data objects being of heterogeneous data type, the propagating being used to enhance clustering of respective ones of the multi-type data objects in a second iteration of reinforced clustering operations*," see par. 11, "At least one cluster is formed based on the stored query and weight associated with each stored document matched responsive to the query. At least one further search document retrieved responsive to a candidate query is matched to the one or more stored documents. At least one further cluster is formed based on the stored query and weight associated with each stored document matched responsive to the candidate query. The at least one cluster and the at least one further cluster are combined."

29. Haahr teaches "*The computer-readable storage medium of claim 22, wherein the iteratively clustering comprises determining a similarity between individual ones of the multi-type data objects, the similarity being a function of at least one of object content similarity and similarities between the at least one of the identified relationships*," see Fig. 10 and pars. 73-74,

"A term vector 62 is then computed from the terms occurring in the matched stored queries 40 and corresponding weights 43 (Block 135)… Clusters 63 are then formed based on the distances of the term vectors 62 from a common origin (Block 137)."

30. Haahr teaches "*The computer-readable storage medium of claim 22, wherein the iteratively clustering comprises merging related ones of the multi-type data objects to reduce feature space dimensionality of the related ones*," see par. 78, "In the described embodiment, each supplemental query consists of the terms originally appearing in the search query 59 and negated forms of all terms appearing in the set of refinements 67, but not appearing in the original search query."

31. Haahr teaches "*The computer-readable storage medium of claim 22, wherein the instructions further comprise instructions for mutually reinforcing an importance of individual ones of the multi-type data objects within an object type and between different object types*," see par. 78, "Finally, the set of refinements 67 are sorted into rankings (Block 147) as a function of the relevance scores 61 assigned to the search documents 60 corresponding to the matched stored documents 41 appearing in each cluster 63 plus the size of the cluster 63 in number of stored documents 41."

33. Haahr teaches "*The computer-readable storage medium of claim 22, wherein utilizing the reinforced clusters comprises: responsive to receiving the bid term from a user, comparing the bid term with a feature space of objects in the reinforced clusters*," see Fig. 10 and par. 77, "A score 66 is then computed for each unique search query 59 occurring in the potential refinement cluster 64 (Block 143)."

Haahr teaches "*responsive to comparing, identifying one or more search term suggestions*," see Fig. 10 and par. 77, "If the score 66 for the unique stored query 40 exceeds a predefined threshold (Block 144), the name is added to the set of query refinements 67 (Block 145)."

Haahr teaches "*and communicating the search term suggestions to the user*," see Fig. 10 and par. 78, "The set of refinements 67 are presented (Block 149) based on the rankings and, optionally, cluster scores."

Allowable Subject Matter

Claims 11 and 32 recite allowable subject matter. The allowance of claims 11 and 32 will be held in abeyance until the remaining claims have been allowed, abandoned, or cancelled.

Response to Arguments

As per applicant's argument that the limitation "the at least one of the identified relationships" in claims 26 and 29 does not lack antecedent basis, the examiner respectfully disagrees. Specifically, claim 22 does not recite "at least one of the identified relationships." Thus, the recitation of "the at least one of the identified relationships" in claims 26 and 29 lacks antecedent basis.

Applicant's arguments with respect to the 35 U.S.C. 103 rejection have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Aaron Sanders whose telephone number is 571-270-1016. The examiner can normally be reached on M-F 9:00a-4:00p.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tim Vo can be reached on 571-272-3642. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Tim T. Vo/
Supervisory Patent Examiner, Art Unit 2168

/Aaron Sanders/
Examiner, Art Unit 2168
21 July 2009